

REMARKS

By the above actions, claims 1-4, 6-7, and 11-13 have been amended. In view of these actions and the following remarks, reconsideration of this application is requested.

Initially, it is noted that the terms “fused”, “coagulate” and “coagulation” have been replaced by the terms which the Examiner interpreted them to mean, i.e., melted and solidified.

Claims 1 and 6 were rejected under 35 USC § 102 as being anticipated by the Japanese reference (JP '631). However, JP '631 teaches directly blowing gases or using blowing agents to produce gas bubbles in the molten metal at reduced pressure to obtain a metal melt. Contrary thereto, the invention does not use blowing gases or blowing agents thus leading to a much more simple and environmentally friendly process. This distinction is now clearly reflected in amended claim 1, so that this rejection should now be withdrawn.

Claims 1, 2, 5, 6, and 8 have been rejected 35 USC § 103 as being unpatentable over Knott et al. publication (U.S. 2002/0121157). However Knott et al. does not introduce gas into the melted metal but rather uses a blowing agent, i.e., a material that is solid at room temperature and produces gas by a chemical decomposition when heated. Typical blowing agents comprise light metal hydrides, like magnesium hydride (MgH₂). When MgH₂ is brought to a higher temperature, it decomposes into Mg and H₂. Knott et al. teach only the use of blowing agents.

Contrary thereto no blowing agent is used in accordance with the present invention. The invention introduces gas by means of the pressure cast scrap having inherently enclosed tiny gas bubbles. So the invention has the advantage over Knott et al. of not having to introduce a new substance, particularly one that is considered dangerous (all Metal Hydrides are explosives). Thus, the invention is much more environmentally friendly. Amended claim 1 clearly reflects this distinction between the invention and that which is taught in the Knott et al. publication. Therefore, this rejection should be withdrawn.

Claims 2-4 have been rejected 35 USC § 103 as being unpatentable over JP '631 when considered in combination with the Japanese patent publication JP 55-138039 (JP '039). However, JP '039 also teaches only the use of blowing agents which, as noted above,

having drawbacks relative to the present invention. Thus, no combination of these two references can lead to applicant's use of scrap without added blowing agents.

Claims 2-4 have been rejected under 35 USC § 103 as being unpatentable over the combined teachings of JP '631 and JP '039 when considered in further combination combination with the Malik et al. reference. Malik also relates to gas formation via thermal decomposition and does not give any guidance to use any other means than chemical gas formation to produce the required bubbles. So again, no possible combination of these references could lead to the present invention so that this rejection should also be withdrawn.

Claim 7 has been rejected 35 USC § 103 as being unpatentable over the either Knott et al. or JP '631 when viewed in combination with the ASM Handbook, Vol. 15, while claims 8 and 9 were rejected solely on JP '631 when viewed in combination with the ASM Handbook, Vol. 15. However, the ASM Handbook, Vol. 15 teaches removing hydrogen from molten aluminum alloys to obtain a dense cast. Contrary thereto the invention aims to have a regular distribution of tiny gas bubbles and to solidify the melt with these finely divided gas bubbles to obtain a foam. Thus, ASM Vol. 15 teaches away from the present invention leading to the application of vacuum in a way that would prevent foam formation.

It was unexpected that introducing light metal pressure cast scrap into a melt and reducing the pressure thereof is sufficient to form a satisfactory light metal foam. Accordingly, the invention is patentable over the teachings of these references no matter how they might be viewed in combination with each other.

Claim 10 has been rejected 35 USC § 103 as being unpatentable over the combination JP '631 with the ASM Handbook, Vol. 15 when viewed in further combination with ASM Handbook, Vol. 2. However, ASM Handbook, Vol. 2 teaches only to recycle scrap of cast products from aluminum without any teaching whatsoever to use this scrap as a valuable gas source in the production of a metal foam. Contrary thereto the prior art teaches to eliminate gas to obtain dense castings.

Claims 13-15 stand based on the same combination applied to claim 12 when viewed in further combination with ASM Handbook, Vol. 15. However, the comments present above relative to these references apply with equal force to this rejection, the withdrawal of which is requested.

Claim 16 has been rejected under 35 USC § 103 based on the two Japanese references, Malik and ASM Handbook, Vols. 2 and 15. However, given the deficiencies of these references noted above, no combination of them could yield the present invention so that this rejection should also be withdrawn.

While the above comments have focused on amended claim 1, it is noted that the various dependent claims further distinguish the invention from the applied prior art.

For example, Claims 2-4 relate to a pre-treatment of the gas-containing light metal scrap which is not suggested by the prior art. Thus, these claims are patentable for this reason in addition to being patentable due to the patentability of the generic independent claim.

As for the provisional obviousness type double patenting rejection of claims 1, 6, 7, and 10 based on co-pending application 11/597737, it is noted that until such time as claims have been allowed in both applications, this rejection is premature. Moreover, since application 11/597737 is junior to this application, allowance of this application should not be held up pending examination and allowance of a claim in application 11/597737 since any necessary actions can be taken in application 11/597737 at a future date by either amendments to the claims of that application or filing of a Terminal Disclaimer in that later application.

While this application should now be in condition for allowance, in the event that any issues should remain after consideration of this response which could be addressed through discussions with the undersigned, then the Examiner is requested to contact the undersigned by telephone for that purpose.

Respectfully submitted,

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